Lesson 74 - Diseases Relating To The Heart And Circulatory System

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1. Introduction

Heart disease is the end result of a lifetime of unhealthful living. It is not due to diet alone or lack of exercise alone but it is the cumulative effect of all our unhealthful habits. It will become clear, after completing this lesson, that the entire body is involved in the development of this condition. Systemic impairment begins long before the symptoms of heart disease become apparent.

The study of the physiology of the heart will demonstrate the unity of the body. The various heart diseases differ in certain respects but they are all indications of total bodily enervation and toxicosis. There are many factors that contribute to this enervated state including cigarette smoking, improper diet and exercise, alcohol, stress, obesity, etc., all to be discussed in this lesson.

2. General Physiology

2.1 The Circulatory System

The circulatory system transports blood from the heart to the cells and back again to the heart in a never-ending stream. The red blood cells contain hemoglobin, a complex protein arranged around iron. They have the important role of taking up large quantities of oxygen as it passes through the lungs and then passing this oxygen to the body cells. As the blood in the lungs picks up oxygen, the hemoglobin becomes bright red (arterial blood). When the hemoglobin reaches its destination, the individual cell, it releases oxygen and picks up carbon dioxide, a waste product of metabolism. The color of the blood carrying carbon dioxide to the lungs for elimination from the body is a bluish red (venous blood).

Hemoglobin has another important function, that is, helping to maintain the acid balance of the blood. Each day the carbon dioxide resulting from cellular metabolism is equivalent to a little more than one-half gallon (2.6 liters) of concentrated hydrochloric acid. That high concentration of acid would injure the cells, so nature provides a neutralizing base, half of which comes from the food consumed each day and the remainder from the body's built-in buffering agents, one of which is hemoglobin.

2.2 Structure of the Heart

The heart is completely enclosed by a thin sac called the pericardium. This tough tissue protects the heart from rubbing against the lungs and the wall of the chest. The inside of the pericardium has a smooth lining that secretes a lubricating fluid. The heart beats smoothly and with little friction against the moistened lining of the pericardium.

A muscular wall called the septum divides the heart lengthwise. Two chambers, one above the other, are on each side of the septum. The upper chamber on each side is called an atrium. The thin-walled atria collect the blood flowing into the heart from the veins. Below each atrium is another chamber called a ventricle. The two ventricles pump the blood into the arteries.

The walls of the ventricles are made of thick, strong muscles. The right ventricle pumps blood through the pulmonary artery into the lungs. The left ventricle pumps blood to the entire body through the aorta. The left ventricle has walls three times as thick as those of the right ventricle because it has to pump the blood so much farther. Valves control the flow of the blood through the heart. The tricuspid valve is between the right atrium and the right ventricle. The mitral valve is between the left atrium and the left ventricle. The semilunar valves control the flow of blood from the ventricles to the arteries. The semilunar valve that controls blood-flow from the left ventricle to the aorta is also called the aortic valve.

Arteries carry blood from the heart to other parts of the body, but the heart itself must also receive nourishment. Blood flows to the heart muscle through coronary arteries. The coronary arteries lie over the walls of the heart in a complicated network, and carry oxygen to all parts of the heart muscle.

The interior of the heart is lined with a smooth membrane, a single layer of cells called the endocardium. The same kind of membrane also lines the valves and the blood vessels. The lining prevents damage to the blood cells by reducing friction and by minimizing the danger of blood-clot formation either inside the heart or inside the blood vessels themselves. Between the endocardium and the outer layer of the heart (epicardium) is the muscular wall itself, the myocardium, consisting of muscle cells surrounded by connective tissue.

The many connections between muscle cells in the atria and the ventricles form the basis for the conduction of impulses from cell to cell. Near the entrance of the two veins that bring blood from the upper and lower parts of the body into the top of the right atrium (the superior and the inferior venae cavas) is a small bundle of highly-specialized muscle fibers that generate impulses necessary for the coordinated contraction of the heart. This bundle is called the sinoatrial node, or pacemaker. The impulses from the sinoatrial node are collected and conveyed to the ventricles by another group of cells in the connective tissue between the left and right sides of the heart. This group is called the atrioventricular node, and from it other specialized muscle fibers, called the bundle of His, after the German anatomist who discovered them, run from the upper to the lower chambers, splitting to left and right as they descend. The two main branches of the bundle of His connect with a network of smaller impulse-carrying fibers (Purkinje fibers), which run to all parts of the ventricles. It is by means of this intricate system of specialized fibers and cells that the heart receives the electrical impulses necessary to maintain a rhythmic, effective and concerted beat.

3. How The Heart Works

Each side of the heart performs a different pumping job. The right side takes blood from the body and pumps it to the lungs. The left side collects blood from the lungs and pumps it to the body.

Blood entering the right side of the heart contains carbon dioxide, a waste product of the body. All blood entering the right side of the heart goes to the lungs before it reaches the left side of the heart. In the lungs, the carbon dioxide is removed, and oxygen is added to the blood, blood that flows to the body from the left side of the heart contains fresh oxygen. The oxygen is used in the body cells to produce energy.

Blood from the body flows into the right atrium through two large veins. One of these veins, the superior vena cava, carries blood from the head and arms. The other vein, the inferior vena cava, carries blood from the trunk and legs.

Blood from the body fills the right atrium. The atrium then contracts, squeezing blood through the tricuspid valve into the ventricle. The tricuspid valve is made of three little triangular flaps of thin, strong fibrous tissue. These flaps permit the blood to flow into the ventricle, but they prevent it from flowing back into the atrium. They are like doors that open only in one direction.

At first, the ventricle is relaxed, but it contracts when it is filled with blood. The resulting pressure closes the tricuspid valve and opens the semilunar valve between the ventricle and the pulmonary artery. Blood gushes through the valve into the artery, which leads to the lungs. The valve is called semilunar because it has three flaps that are shaped like half-moons. Blood squeezed from the ventricle pushes the flaps against the walls of the pulmonary artery.

From the lungs, the blood flows back to the heart through the four pulmonary veins. It flows out of the pulmonary veins into the left atrium. The left atrium, like its neighbor on the right, then contracts, squeezing blood through the mitral valve into the left ventricle. The mitral valve is similar to the tricuspid valve, except that it has only two flaps. The left ventricle contracts, forcing blood through another semilunar valve into the aorta. The aorta, with its numerous branches, carries blood throughout the body.

4. Control Centers

Because the cardiovascular system is the major environmental control center in the body, it utilizes a battery of sensors and monitoring devices to trigger corrective action or relay information to other body systems. Thus monitors within the cardiovascular system measure blood pressure and send this data to the brain, which then determines necessary adjustments.

4.1 Nervous System

The primary regulator of blood pressure is the brain stem, where groups of specialized nerve cells control the activity of the heart (cardiac-activating and cardiac-inhibitory centers) and another nerve-cell group regulates the diameter of blood vessels (vasomotor center). Blood pressure is augmented when the

sympathetic nervous system carries commands from the cardiac-activating center to increase the heart's activity and from the vasomotor center to constrict arterioles and veins. Blood pressure is decreased when the vagus nerves convey commands from the cardiac-inhibitory center to the sinoatrial node, slowing heart activity.

When blood pressure rises, sensors in the aorta and carotid arteries send impulses to the brain which inhibit the cardiac-activating center and the vasomotor center and simultaneously stimulate the cardiac-inhibitory center.

Sensors in the heart and lungs monitor the volume of blood in the vascular system. Messages sent by these receptors lead to adjustments in the circulatory system via sympathetic nerves. Other sensors monitor the oxygen content of blood and lead to changes in the respiratory system. These various monitoring cells supply the brain with the essential data for adjusting the circulation so that it can respond to any stress.

4.2 Hormonal Control

The action of the nervous system on the circulation is augmented when necessary by hormones secreted into the bloodstream from endocrine glands. Among the many hormones that can affect the function of the heart and blood vessels, the most important are adrenal catecholamines and angiotensin II.

4.2.1 Adrenal Catecholamines

There is an adrenal gland located just above each kidney. These glands consist of a central group of cells, the medulla, surrounded by a layer of different cells, the cortex. The medulla produces two substances called catecholamines—norepinephrine and epinephrine. The norepinephrine secreted by the medulla increases the rate of the heartbeat and the strength of heart muscle contraction and at the same time causes constriction of the muscle cells in the blood vessel walls. The epinephrine causes relaxation of blood vessels in the skeletal muscles, which augments the blood flow to the muscles during exercise.

The cells of the adrenal medulla are controlled by the sympathetic nerves; each increase in the number of impulses from these nerves increases the secretion of the catecholamines.

4.2.2 Angiotensin II

Cells located in the walls of kidney arterioles produce a chemical substance, renin, which is converted into angiotensin II. This very active product increases the formation of aldosterone (one of the hormones produced by the adrenal cortex), which in turn causes greater reabsorption of sodium and water from the kidneys and a subsequent increase in blood volume. Angiotensin II also acts more directly to cause muscle cells in the walls of the arterioles to contract; the result of all this activity is an increase in arteriolar resistance.

5. Factors Contributing To Heart Impairment

Heart impairment results after many years of unhealthful living. It is the cumulative effect of improper diet, poison habits, sedentary lifestyle, overwork, etc. All of this leads to enervation, impaired elimination and toxicosis. Major factors resulting in this toxicosis include cigarette smoking, improper

diet, lack of exercise, alcohol, coffee, stress, obesity and drugs. The combination of these factors eventually leads to impairment of one or several of the mechanisms described in the physiology of the heart. When any of these mechanisms are impaired, the heart is directly affected.

5.1 Cigarette Smoking

The single most important effect on health due to cigarette smoking is the development of heart impairment. In 1975, approximately 25% of the 650,000 deaths from coronary heart disease were attributed to cigarette smoking. The 1979 Report of the Surgeon General On Smoking and Health identifies smoking as related to coronary heart disease for both men and women in the United States, and cigarette smoking as a major independent risk factor for the development of fatal and nonfatal myocardial infarction.

Smokers who quit reduce their risk of dying from coronary heart disease; the reduction approaches that for the nonsmoker following a total abstinence of ten years. Studies show that smoking low tar and nicotine cigarettes does not reduce one's risk significantly; some smokers merely inhale more deeply or smoke more often.

It has also been shown that cigarette smoking is associated with more severe atherosclerosis of the aorta and coronary arteries than has been found in nonsmokers. Smoking is also reported as being responsible for increased deaths from arteriosclerotic aneurysm of the aorta (a ballooning effect that can lead to its rupturing).

Recent research would indicate that carbon monoxide may be one of the factors in the cigarette smoke that leads to the development of atherosclerosis, resulting in angina pectoris and heart failure.

Carbon monoxide (CO), one of the most poisonous byproducts of cigarette smoking, is a colorless, odorless gas that makes up anywhere from about one to five percent of cigarette smoke. Because it has an extremely strong affinity for hemoglobin (which carries oxygen to the tissues), any inhaled CO quickly displaces the oxygen in the blood, forming carboxyhemoglobin. Carbon monoxide may cause damage by injuring the walls of the arteries, enhancing the development of atherosclerosis, which narrows the arteries, diminishing the supply of oxygen and other nutrients. In addition, carbon monoxide is the principal contributor to diseases of the respiratory system and sudden death from coronary heart disease.

Nicotine is generally understood to be the addictive element in tobacco that results in stimulation of the adrenal glands and certain heart tissues to release certain hormones called catecholamines. The catecholamines raise the blood pressure and the heart rate, causing the heart to work harder, thus requiring a greater amount of oxygen. But as smokers take in nicotine, they are also inhaling carbon monoxide, which decreases the amount of oxygen in their blood. Thus, nicotine in combination with carbon monoxide may be the predisposing factor in the development of heart disease and heart "attacks."

In addition to speeding up the heart rate and causing a rise in the blood pressure, nicotine also results in a constriction of the blood vessels. The constriction of blood vessels additionally leads to a decrease in blood flow to the fingers and toes and aggravates such peripheral vascular conditions as Buerger's disease and Raynaud's phenomenon.

You must realize that cigarette smoking is one of a series of factors that lead to heart impairment. Other factors are important also and together create the conditions (a state of toxicosis) that results in this degenerative disease.

5.2 Diet

Habitual excesses in eating (especially in concentrated fats, protein and sugars); eating the wrong kinds of foods; eating improperly-combined foods; result in toxicosis and enervation of all bodily organs including the, heart.

5.2.1 Fats

In 1961, the American Heart Association began providing information to the public on the link between high levels of cholesterol in the blood and the development of atherosclerosis, the disease where fatty deposits or plaques accumulate in the walls of the arteries. Simultaneously there was encouragement of the public to decrease its intake of fat and cholesterol. Such advice has its origin in the research around 1913 by a Russian scientist, Nikolai Avitschev, showing a connection between a high-cholesterol diet and fatty deposits in the arteries (atherosclerosis) of rabbits. This discovery has led to extensive medical research on how blood fats and cholesterol contribute to disease of the human circulatory system.

Atherosclerosis develops gradually due to an unhealthful lifestyle, with no symptoms, for anywhere from twenty to forty years or even longer. Then serious clinical signs manifest themselves. These may be in the form of chest pain, heart "attack," stroke or sudden death.

Dietary substances and blood constituents other than cholesterol are also involved in the development of atherosclerosis. When you follow a more healthful lifestyle, including proper diet, the accumulation of these fatty substances do not occur.

In order for the body to transport and use fats, they must be combined with another molecule to make them soluble in the blood serum, the fluid portion of blood. This molecule is a protein, that combines with the fats to form lipoproteins, making possible the transport and utilization of fats. Lipoprotein molecules come in various sizes and weights and the amounts of cholesterol and other lipids they contain vary according to the size and weight.

The heaviest of these molecules is high-density lipoprotein (HDL). HDL contains the highest proportion of protein and has recently been shown to be possibly important in transporting fat away from body cells. Thus, cholesterol and other fats do not accumulate within the artery walls. There is also evidence that the higher the amount of HDL in the blood, the lower the subsequent risk of fatty artery disease, heart failure and strokes. Normal levels of HDL are found in people whose diet consists chiefly of raw fruits, vegetables, nuts and seeds.

Low-density lipoprotein (LDL) is lighter than HDL and contains the largest proportion of cholesterol of any of the lipoproteins. There is considerable evidence that a high amount of LDL is a factor in the accumulation of fatty, materials in artery walls. High levels of LDL are found in those people whose diet is high in animal products—meat, eggs and dairy products.

Researchers have found that lower cholesterol levels are associated with lower incidence of heart disease. For example:

Monkeys fed a high-fat diet to increase their levels of blood cholesterol, after returning to their normal low-fat diet, do show evidence of reduction in fatty deposits in their arteries.

Wartime experiences in Switzerland, Scandinavia and other European countries during the 1940s suggest that changes in diet, which included reduced consumption of fats and increased consumption of vegetables, resulted in a lower incidence of heart impairment in a fairly short time.

Dietary changes in Europe after World War II, and increased consumption of fats and sugar among immigrants to Israel and the United States, coincided with an increase in blood cholesterol levels and a rapidly increasing frequency of heart attacks.

Dietary Sources

Many people use margarine because they are told that the unsaturated fat in margarine is much more desirable than the saturated fats found in butter. But margarine is an artificial product full of additives, emulsifiers and chemicals that aren't meant for human consumption. Flavor enhancers in the form of diacetyl and isopropyl and steryl citrates are added to margarine. Sodium benzoate, benzoic acid or citric acid are added as preservatives. (The benzoates are poisonous and have actually resulted in death.) Emulisifiers are also added, such as diglycerides, monoglycerides, etc. and these do not have to appear

on the label.

When margarine is hydrogenated, a chemical process is used where hydrogen is added to unsaturated bonds of carbon or oxygen of the oil. Under a controlled process, however, most of the essential fatty acid, linoleic acid, is changed to oleic acid. The hardening process may also produce a different spatial arrangement of the atoms of the molecule of an essential fatty acid (EFA). Because of this difference, the EFA are not utilized properly by our cells and can actually interfere with the utilization of normal fatty acids. This situation may accentuate a deficiency of EFA. Researchers report that cancer, arthritis, heart disease, skin disease, arteriosclerosis, and other degenerative conditions appear to be affected by a lack of EFA.

It becomes clear that margarine is something that we definitely should not consume. Butter does not contain as many artificial additives but it is a saturated fat known to play a role in the development of artherosclerosis. It is also often heavily salted and dyed. Many physicians advocate the inclusion in our diet of such polyunsaturated oils as corn or safflower oil in the place of butter or margarine. However, consumption of polyunsaturated fats is known to result in the formation of free radicals.

When atoms combine to form molecules, their electrons usually group together in pairs. If one of the electrons is lost, the, molecule becomes a free radical. In the presence of oxygen, free radicals form spontaneously in the tissues from certain substances, mainly polyunsaturated fat. According to Zane Kime, unpaired electrons are very unstable. They react abnormally with almost anything close by and can result in damage to nearly every system in the body. As the unsaturated and polyunsaturated fats increase in the diet, they also increase in the tissues. Metabolism can be altered because the cell walls are further weakened due to the abnormal fatty acid formation. This allows many impurities to enter the cells that would not ordinarily enter.

Where are we to obtain our dietary fats if not from margarine, butter or free oils? The best source is found in our natural foods—fruits, vegetables, nuts and seeds. We are not only receiving all the fats that we require from these foods but we are acquiring them in the correct proportions with the vitamins and minerals and other food constituents. The body makes use of this form of EFA easily and perfectly.

Research Studies

In a study comparing the effects of substituting plant for animal fat in the diet, six subjects showed significant reductions in serum concentrations of free and esterfied cholesterol and of phospholipids when plant fats were substituted for animal fats during a four-month period. The approximate change was a 20% decrease even though body weights and caloric intakes were kept constant during the experiment.

In another study, 58 vegetarians who eat no animal products and live on a farm commune were examined. The average lipoprotein-cholesterol level of this group were 60% of age-and-sex-specific normal levels compared to a control group. The conclusion of the study placed the vegetarians in a lower-risk category for the development of clinically manifest atheroclerosis.

5.2.2 Carbohydrates

Consumption of refined carbohydrates results in enervation and impairment of all bodily cells, tissues, glands, organs and systems. This unhealthful habit often results in diabetes and/or arteriosclerosis. Overconsumption of refined sugar stresses the pancreas until it becomes so enervated that it ceases to function. The body then begins to break down stored glucose in the fat cells into triglycerides. This increases the fat in the blood to above normal levels and some of this fat remains in the arteries of the heart and elsewhere.

The results of incorrect diet are systemic and do not involve just one organ or gland. It takes many years of this unnecessary abuse to damage the heart so severely that it is incapable of performing.

As in all bodily organs, the heart is intimately involved with, and dependent upon, all other bodily systems. Any slight impairment in any of the ystems—nervous, endocrine, digestive, etc.—will affect the heart.

Overconsumption of carbohydrates results in a toxicosis that ultimately affects total health.

5.2.3 Proteins

The quantity and quality of the proteins are essential for optimum health. Many people overeat on protein foods. This results in enervation, since much more energy is needed for digestion and metabolism of protein. The body must either eliminate excess protein or store it for future use. This situation is enervating and, if continued, will result in impaired elimination with the increase of endogenous and exogenous poisons. The end result is degenerative disease. Dr. Robert Gross states, "The end products of protein digestion are acidic—urea, uric acids, adenine, etc. which, beyond a certain normal range, will cause degeneration of body tissue, producing gout, liver malfunctions, kidney disorders, digestive disturbances, arthritis and even hallucinations." Dr. D. J. Scott says: "Too much protein solidifies (like coffee) and has the same stimulating effect, and a high-protein diet will eventually destroy the glandular system, and damage the liver, adrenals and kidneys." When any of these organs are affected, the heart is also.

Not only the amount of protein, but the kind of protein is important. The best sources of concentrated protein for man are raw unsalted nuts and seeds. In their raw state, all the enzymes are intact and the amino acids are unchanged. Fruits and vegetables, though containing relatively smaller amounts of protein in their natural state, also provide amino acids for complete and optimal nutrition.

When proteins have been cooked or preserved, enzymes are coagulated, cleavage is inhibited and the amino acids may not be liberated for body use. Instead they become soil for bacteria and poisonous decomposition byproducts. Man cannot digest flesh protein properly and putrefaction invariably results. This adds poisons to the body in addition to the poisons that are already in the meat. All of this contributes to the development of disease.

5.3 Exercise

Dr. Shelton says, "The heart is a muscular organ—it is almost all muscle—and like all other muscles of the body, is strengthened by use. A heart that is never called upon to do vigorous work does not grow vigorous and strong. If it always does light work it tends to become soft and flabby. It needs periods of vigorous work to build up and maintain its maximum strength and ability."

The response of heart muscle to exercise is similar to that of skeletal muscle. After such training, the heart can contract more strongly and in a better coordinated way so as to wring out more blood with each contraction. In endurance training, the heart muscle becomes larger, adding to the potential power of each stroke. The heart rate becomes slower at rest (intensive endurance training can slow the resting rate ten beats per minute). The coronary circulation increases as the result of exercise. This increase in coronary vessels appears in all active tissues, aiding in the delivery of supplies and the removal of waste.

Thus, with proper exercise, the heart becomes richer in oxygen, more massive and powerful, and more efficient. The reconditioned heart beats more slowly at rest and during work, and acquires a greater pumping capacity.

Exercise also provides the heart with a fantastic support system. Every muscle is like an auxiliary heart, helping to pump blood. When a muscle contracts, it squeezes blood toward the heart. When it relaxes, it allows the muscle to be filled with blood—exactly like the heart. The proper conditioning exercise is a rhythmic continuous one where the muscles pump repetitively. As blood pumps' from the muscles, it is always toward the heart.

When a sedentary person becomes fairly active by adding a mild exercise such as walking, many

changes take place in his body that are important in improving the general health. Blood pressure is lowered, resting heart rate decreases, muscles (including the heart muscle) become stronger and there is a vast increase in the number of active small blood vessels that carry blood to the cells of the muscular tissues. The blood itself is improved; it carries more oxygen; and the blood platelets become more efficient.

According to Dr. Fred Stutman, author of The Doctor's Walking Book, people with sedentary jobs run a higher risk of coronary artery disease. He says that walking between 45 minutes and one hour, three or four times a week, may decrease this risk. Walking increases the ability of the heart and lungs to take in and distribute oxygen in the body and this helps build physical endurance. It is claimed that this factor has been beneficial to patients with coronary heart disease. However, keep in mind that this is only one aspect of health and must be combined with all of the other conditions in order to result in health. Heart disease cannot be eliminated through exercise alone, but it helps when all of the other conditions for health are provided.

Dr. Stutman also points out that moderate exercise results in lowered circulating blood fats to the same extent as the more strenuous forms of exercise. We do not have to be marathon runners for optimum health but a moderate exercise program is recommended. Exercise results in the altering of the distribution of different forms of lipoproteins in the blood.

5.4 Caffeine

Caffeine results in stimulation of the heart and rapid heart beat and arrhythmias are typical symptoms of this stimulation.

A substance found in almost all cells, including lymphocytes, is known as cyclic adenosine monophosphate (C-AMP). If high levels of cyclic AMP build up in the lymphocytes, they become unable to function properly. Coffee, tea and chocolate containing caffeine, theophylline, and theobromine increase the amount of C-AMP which would normally take place. Increased C-AMP depresses the ability of the lymphocytes to function, and is a stimulant to the nervous system.

Researchers have found that 158 mg. of caffeine results in a rise in cardiac index and stroke index in normal subjects. Caffeine also results in cerebral vascular resistance with a decrease in blood flow.

Sandord Bolton reported a 60% increase in acute heart attacks associated with consumption of one to five cups of coffee and a 120% increase with more than five cups. An epidemiological study involving Hawaiian males showed a significant correlation between coffee consumption and heart disease.

Caffeine also stimulates release of catecholamines from the adrenal medulla. Catecholamines have a marked effect on the central nervous system, metabolic rate, temperature and smooth muscle.

In one study, instant coffee (220 mg. of caffeine), was given to 18 young males with a resultant increase in epinephrine blood levels and urinary output. Blood lipids were also increased as a result of catecholamine stimulation. Epinephrine is a vasoconstrictor and cardiac stimulant.

Even in small doses, caffeine is a powerful poison that results in impairment of all parts of the body. These systemic effects often result in heart impairment as enervation of this organ becomes greater.

5.5 Alcohol

Evidence linking alcohol consumption and heart disease includes the following:

1. Heavy alcohol consumption is associated with elevated blood pressure.
2. Distinctive forms of heart enlargement and heart failure occur in advanced alcoholics, who often tend to be malnourished.
3. Alcohol has been shown to result in impaired performance of heart muscle in humans.
4. Experimental evidence in animals shows structural and functional derangement of heart muscle

cells as an effect of chronic administration of alcohol.

Alcohol is a poison and its ingestion results in enervation of all bodily organs including the heart. The heart is at first stimulated while it attempts to rid the body of this poison but alter a time becomes enervated and its function becomes impaired. Accumulation of the very toxic products of alcohol burden the liver and all other parts of the body including the nervous system and glands that directly affect the heart performance.

5.6 Stress

Various studies have shown coronary heart disease to be associated with such psychological tendencies as anxiety, neuroticism, depression, aggression, hostility, sense of time urgency and with such social factors as mobility, status, life events and dissatisfactions.

These factors may contribute to the development of heart impairment along with underlying conditions of enervation and toxicosis that result from improper diet and the rest of the factors which result in chronic disease.

Under stressful conditions, adrenal glands will secrete certain hormones that have a direct influence on the heart. Repeated stress will eventually result in enervation of the heart and the rest of the organs responding to that stress. This is just another factor in the total health package that should not be ignored.

5.7 Obesity

Evidence linking obesity and overweight to cardiovascular risk includes the following:

1. Insurance experience indicates that the death rate from all "diseases" including cardiovascular rises, as relative weight goes from low to above average.
2. Some follow-up studies of United States populations show similar relationships and risks.
3. Obesity and overweight are widely associated with other risk characteristics thought to have an influence in fatty artery disease (specifically, high blood pressure, glucose intolerance and diabetes and elevated blood uric acid). All of these factors can be resolved through a proper diet and weight reduction, as can cholesterol and triglyceride levels.

Obesity, obviously, is the result of improper diet together with lack of exercise. This condition is the direct result of a diet high in fats, meat, dairy products and sugar. All of these foods will not only result in obesity but the toxins invariably found in all of these foods will clog the body with poisons and contribute to the development of degenerative diseases of all kinds including heart impairment. Obesity may be corrected quickly through a fast followed by a diet of raw fruits, vegetables, nuts (unsalted) and seeds. Not only will weight normalize but general total health will greatly improve along with the lowered incidence of heart disease.

6. A Look At Other Societies

Weston Price attributed degeneration of modern society to modern refined foods. To prove his theory, he visited several "primitive" tribes of people, during the 1930s, in many parts of the world. In every case, those people who lived exclusively on natural foods were free from dental caries and other signs of

physical degeneration and they lived long and healthy lives. However, when some members of their society adopted the "modern" dietary of refined white flour, sugar, pastries, jams, and canned goods, their health declined. This was evident in the first generation after the adoption of the modern diet.

More recently, Dan Georgakas conducted a study of longevous peoples throughout the world. It is well known that the people from Abkhasia in Russia are especially long-lived and healthy. Such degenerative diseases as heart disease are virtually unknown there. Commenting on the diet followed by these people, Georgakas says, "The traditional diet followed by most of those who became centenarians contained between 1,500 and 2,000 calories a day. Seventy percent of that intake was from vegetables and dairy products. Fruits, nuts, grains made up the rest of the diet."

In addition, Georgakas notes, there was no coffee, tea or sugar and little butter or salt. Whatever the food served, all leftovers were discarded, because they were considered harmful to good health. Such concerns for freshness guaranteed that a minimal loss of nutrients took place between garden and table. Most food was consumed raw or boiled, with nothing fried.

Georgakas says, if the 1970 census is accurate, Abkhasia would have a longevity rate 20 times that of the United States. Factors such as the nature of the traditional diet, strenuous physical activity throughout life, the hilly terrain, rhythmic patterns of work, a pollution-free environment and the unique psychological support enjoyed by the long-lived figure heavily in their longevity.

In Hunza, heart trouble is virtually unknown. The Hunzas live upon the produce of their land (mainly fruits and nuts); engage in strenuous physical exercise throughout their lives; and live in an unpolluted environment free from stress. This healthy regime results in longevity and a life free from all degenerative diseases.

7. Hypertension

Blood pressure is the force exerted by blood against the walls of the vessels that carry it. When the heart contracts, the pressure is increased. When the heart relaxes, the pressure is decreased. The blood pressure is determined not only by the power of the heart expelling the blood, but also by the resistance to the blood flow encountered in the arterioles acting under the influence of the nervous system and of the hormones.

When our regulatory devices become impaired in any way, the arteries may constrict and stay that way. The blood pressure rockets. Physicians label this condition "essential hypertension." To correct this condition, we must simply eliminate the cause of all disease by living according to the needs of the body and eliminating poisons and enervating influences.

High blood pressure is a symptom that is present in many diseases. It is one of many endings of a series of crises in toxicosis. Dr. Shelton says, "Perhaps the greatest single cause of high blood pressure is toxemia resulting from checked elimination. Secondary toxemia, such as that seen in nephritis, and intestinal autointoxication arising out of gastrointestinal fermentation and putrefaction, all produce enough nerve irritation to cause nigh blood pressure. A high-protein diet gives rise to a particularly virulent irritation when it putrefies in the digestive tract."

Dr. Shelton further explains that any form of excess taxes the nervous system and brings on enervation, checking secretion and excretion. Checked secretion produces indigestion with its consequent intestinal autointoxication; checked excretion produces toxemia.

Fasting, especially a long fast, tends to lower the blood pressure. The blood is less viscous when fasting,

and arterial obstructions are cleared out. The body is generally less congested and the blood flows more easily. The pulse goes down, the blood pressure drops, and energies are conserved. During the fast, the body removes its excess toxins and irritations. However, it is important that the person learn to live healthfully after the fast or the blood pressure will rise again. Dr. Shelton says, "To go to bed and fast and reduce blood pressure, and then return to the former mode of living—the former excesses and indulgences, to the poisonous vices and emotional habits, to the prior sexual excesses and to dishonesty, gambling, etc.—is to rapidly rebuild the pathological state that produced the high blood pressure."

8. Cardiovascular Drugs

To quote Dr. Shelton, "The broad and distinct difference between the Hygienic system and the drug system is this: Hygiene seeks to restore health by healthful means and conditions; drug systems seek to cure disease with agents that are known to produce disease in the well. Instead of filling our bodies with poisons, why not look to rest, sleep, better food, fasting, exercise, sunshine, emotional poise, cleanliness, and plain and simple wholesome food as the means of restoring us to health? Hygienic care consists in the use of such means as when applied to a man in health will keep him in health and will not tend to make him sick. Medical treatment of the sick consists almost wholly in the use of means which if given to a man in perfect health would unfit him for work or business or, perhaps, even kill him. The Hygienist rejects all poisons and employs only beneficial substances and conditions to aid the healing processes of the body."

So drugs are not recommended. They do not produce health but contribute to disease.

8.1 Digitalis

Digitalis is a highly-poisonous substance derived from the leaves of the foxglove, formerly used as an "herb remedy." It was first introduced to formal medicine in 1785 by the English physician William Withering, but its use in folk medicine preceded that date by many years.

Digitals belongs to a group of drugs called the cardiac glycosides. The two most commonly-used glycosides are digoxin and digitoxin. This drug is know to result in many adverse effects. The most serious toxic effect is a dangerous irregularity of the heartbeat, but the patient may also suffer nausea, vomiting, and various symptoms of brain involvement, including drowsiness, headache, and blurred or strangely colored vision.

Stimulation from any drug is a very exhausting action and is always followed by a period of depression or exhaustion. Digitalis slows the heart action by stimulating the vagus nerve centers. The right vagus nerve is distributed predominantly to the sinoatrial node, and the left vagus affects principally the atrioventricular node. Stimulation of the right vagus decreases heart rate, whereas left vagal stimulation may induce ventricular slowing subsequent to the development of heart block. Large doses of digitalis or an accumulation of smaller doses can result in heart block. If a complete block of the heart's electrical conduction system occurs, the heart may be slowed to an extent that it cannot sustain life.

Digitalis also results in a disturbance of the normal rhythm of the heart (arrythmia). The rhythmical projection of impulses from the sinus node are disturbed so that the heart rate shows regularly alternating short phases of slowing and acceleration.

A bundle of muscular fibers in the heart known as the auriculoventricular bundle or the bundle of His, conducts impulses from the auricle to the ventricle. These are conducted in a way to cause the

ventricular beat of the heart to follow the auricular beat in about one-fifth of a second. The administration of digitalis retards or prevents this conduction of impulses. Here again the effect is due to the stimulation of the vagus center. It is not uncommon for a prolongation of the interval between the auricular and ventricular beats from three-tenths to three-fifths of a second, when digitalis is given in so-called therapeutic doses.

The excretion of digitalis is slow so that continued administration of large doses of the drug easily gives rise to "accumulative poisoning." Poisoning resulting from an overwhelming dose results in death in a few minutes. This state of poisoning presents four well-defined states:

1. Vagus and vasoconstrictor stimulation with slowed heart, rapid rise in blood pressure, and diastolic relaxation indicating diminished tone of the heart muscle.
2. Predominance of vagus action, with greater loss of tone and heart block, or brief periods of vagus standstill, and sometimes premature beats from, muscular irritation.
3. Predominance of muscular action with abrupt changes to tachycardia, very rapid beating of the ventricle, usually not in unison with the auricle, high arterial pressure.
4. Weakness and excessive irritability of the heart muscle with auricular tremor, ventricular tremor and death.

8.2 Diuretics

High blood pressure with excessive blood volume is often the result of excessive water and salt retention. The single greatest cause of salt and water retention is the dietary consumption of inorganic sodium chloride (table salt). Salt affects the vascular system in two ways: as an osmotic influence (attracting molecules of water) and as a chemical irritant that sensitizes the vascular smooth muscle to normally-occurring vasoconstrictor substances such as adrenalin. Direct interference with kidney function is another way that salt use contributes to high blood pressure.

Diuretics are given to prevent the reabsorptipn of salt and water by the kidneys and thus lessen the symptoms of congestive heart failure. There are many kinds of diuretics but all have the same objective to increase the output of salt and water in the urine. One of the major problems they present is an excessive loss of salt and other minerals, especially potassium. Potassium loss is most common with the widely-used thiazide class of diuretics (chlorothiazide and hydrocholorothiazide). Their use can result in feelings of weakness and if digitalis is being taken at the same time, car, make toxicity even greater. This loss of potassium is often counteracted by adding a second diuretic—one that does not cause potassium loss—to the thiazide. However, the combination of diuretics induces another danger: diuretics that prevent potassium loss do so by interfering with the kidneys to excrete the mineral. This can lead to a dangerously high level of potassium in the body. Thiazides can also reduce the elimination of uric acid and thus aggravate an existing case of gout and redeposit this highly toxic by-product into the tissues.

8.3 Vasodilators

Drugs that result in the dilation of blood vessels are often given to heart patients. The vasodilators longest in use (more than one hundred years) are the nitrates. Nitroglycerin is the most-frequently used and is usually taken in tablets that are placed under the tongue and allowed to dissolve.

The toxins of the nitrates result in fainting or dizziness, headaches, and palpitations resulting from the compensatory increase in heart rate and the speed of heart contraction. The presence of this poison in the system requires additional work of the already-exhausted heart to eliminate this harmful substance.

8.4 Propranolol

Propranolol (Inderal) is a drug that results in a block of some of the sympathetic nerves to the heart. These nerves (the beta-sympathetic or beta-adrenergic nerves) carry messages from the brain that cause

the heart to increase its rate and the speed of its contraction. When these messages are blocked, the heart rate slows, the speed of contraction decrease and the heart's demand for oxygen decreases.

One of the possible dangers is the development of congestive heart failure because the speed and the force of the heart's contraction are reduced. However this poses two major problems: the congestive failure itself; and the consequent expanded volume of blood in the heart, which increases its size and may make the angina worse.

Another toxicity results from propranolol. This drug affects the beta-sympathetic nerves throughout the body, not just those of the heart. Since these nerves are responsible for dilating the blood vessels of the skin, propranolol use can result in constriction of these vessels, leading to pale, cold hands and feet. The same nerves also cause the body's air tubes to dilate, and when that dilation is blocked, the air tubes become constricted. A patient with asthma can find the condition aggravated.

Patients who are taking insulin for diabetes experience another problem with this drug. Beta-sympathetic nerves cause an increase in blood sugar when the level drops too low. In a diabetic person who is taking insulin, a low sugar level can be aggravated or prolonged when propranolol is also being taken. Propranolol can also result in depression, difficulty in sleeping, and sometimes, impotence.

A number of other drugs are also given to heart patients. They are all poisons. The result from taking any drug is enervation and toxicosis. It is like pouring gasoline on a fire in order to extinguish it. You are just making matters worse and aggravating an already toxic condition.

9. Your Choice

Persons with heart disease believe that they do not have any choice but to take drugs to palliate their symptoms. But they do have a choice. Drugs will not heal and they do not produce health. However, given the proper conditions, the body will heal. The most important requirement for all heart patients is rest. That is, to rest in bed and abstain from all food until healing of the heart has taken place. During this physiological rest, toxins will be eliminated from the body; cholesterol accumulations along the arteries will break up and will be eliminated; and the heart will begin to repair itself. During the fast, vital energy is not being expended for digestion and therefore, more energy is available for repair.

9.1 The Fast

Dr. Hereward Carrington, author of *Vitality, Fasting and Nutrition*, recognized the fact that fasting resulted in strengthening of the heart. He attributed this improvement to the following three factors:

1. The added rest the fast provides the heart.
2. The resulting improvement of the bloodstream.
3. The absence of the "stimulants" that patients in general and heart patients in particular are accustomed to take.

Dr. Shelton Says, "If we consider angina pectoris, a disease of the heart that grows out of constant stimulation with tobacco, coffee, tea, wrong food combinations and excesses of carbohydrates, and observe the effects of the fast in these patients, we are amazed at the speed with which the heart recovers from its difficulties."

It is not claimed that fasting actually "cures" anything. We know that fasting takes a load off the heart so that it may restore its own normal condition in a more certain and speedy manner. Fasting results in the

quieting down of a rapid heart. This takes a heavy load off the heart and results in a speedy reduction of blood pressure.

With a reduction of tension and the number of repetitions of the heart's pulsation, a rest is secured. With less work to do, the heart repairs itself.

In the hundreds of cases of heart disease that Dr. Shelton has witnessed through fasts of various lengths, all but a few have developed stronger and better hearts. Many of them, even so-called "incurable" ones, have become entirely normal. Rapid hearts have slowed down, abnormally slow hearts have speeded up, weak hearts have greatly improved in vigor, hearts that were irregular have become regular in time and frequency, hearts that were missing pulsations (even as often as one pulsation out of four) have resumed regular pulsation, and many other improvements in heart function have been observed.

The rest provided for the heart is accounted for in several ways. There is a marked lessening of the number of pulsations of the heart; there is a fall of blood pressure; and there is a reduction in weight. Weight reduction is most marked in fat individuals whose size is such that the heart has to labor to keep the blood circulating through so much bulk. The loss of pounds relieves the long-suffering heart of a burden. Every pound that is lost relieves the heart of work it has been forced to do.

Edema is often observed in the weakened heart of the heart patient. This edema is a major consequence from taking common table salt (sodium chloride). This salt is nonusable and poisonous. It is excreted with difficulty, and tends to accumulate in the body of the salt eater. It is stored in the surface tissues just under the skin and in cavities, along with water that is needed to dilute it. This salt-occasioned edema, often sufficiently marked to be easily detected, places an added burden upon the heart and kidneys. The body of the fasting patient is able to bring the salt and water back into the circulation, from where it is excreted.

The principle of lightening the work of the circulatory system and particularly that of the heart by decreasing the food intake and by eliminating salt from the diet is carried to its ultimate stage when the heart patient fasts.

The fast seems to result in an instantaneous improvement in the function of the kidneys, so that there is an immediate increase of elimination. With the increased excretion through the kidneys of water and sodium chloride so that the edema is reduced or obliterated, the heart is greatly relieved. It has also been suggested that fasting may favorably affect certain vasomotor centers, (the nerve centers that control circulation), thus causing improvement in the condition of the heart and arteries.

It should be understood, however, that no sufferer from heart disease should ever attempt to fast on his own but should consult with a practitioner who has experience with the fast.

After the fast, it is imperative that a more healthful diet is strictly adhered to. That is a diet low in fats and proteins and high in natural carbohydrates. A diet of raw fruits, vegetables, and raw, unsalted nuts and seeds will provide the perfect nutritional requirements.

In addition to this, a regular vigorous exercise program should be gradually assumed. Accompany this with plenty of fresh air, sunshine, and emotional poise, and improved health will follow.

10. Questions & Answers

What is rheumatic fever and why does it affect the heart?

The disease that physicians have labeled "rheumatic fever" is considered by them as the most common heart disease of childhood and youth. Most commonly, it begins by a minor sore throat and cold. This is an indication that the body is initiating a "housecleaning" and ridding itself of some of its toxic debris. It is a sign of vitality and should not be suppressed but instead you should cooperate with the body in this effort and health will be restored quickly. Most often, it is not understood that this "disease" is a healing process and drugs are given. Drugs suppress healing and add more toxins that are enervating. Now the joints become inflamed and heat and pain are felt in the knees, wrists or elbows. More drugs are given in the form of antibiotics or hormone drugs and the healing process is again suppressed, the body becomes even more enervated and toxic and the heart becomes inflamed. Instead of securing rest and allowing the body to eliminate its toxic overload and recover from its enervation, additional drugs are given. The end result from this series of abuses is extreme enervation and toxicosis and eventual damage to the heart itself. Physicians often blame this "disease" on a strep infection but it is not germs that produced the heart damage. If the body had been allowed to rest and fast when the minor sore throat first appeared, health would have been restored immediately.

Is vitamin E a good preventative for heart disease?

Disease is not a normal occurrence and therefore does not need to be prevented.. If we live healthfully, we do not have to worry about heart impairment. The body does need vitamin E but cannot utilize it in a synthetic or inorganic form. Further, we do not require very much of this vitamin since a great deal is stored in our tissues and can be used over and over again. All of the vitamin E that we require is found in the fresh fruits and vegetables, nuts and seeds of our daily diet.

What is Raynaud's phenomenon and how should it be treated?

Raynaud's phenomenon is a condition where the smallest arteries supplying the fingers or toes constrict on exposure to cold or following any stressful situation. Because the small veins are usually open, the blood drains out of the capillaries and the fingers or toes become pale, cold and numb. If there is a spasm in the small veins and the blood becomes trapped in the capillaries, the fingers or toes become blue as the blood loses its oxygen. The condition clears when the spasm is released by rubbing the parts affected or by returning to a warm environment

This condition should not be treated at all. Instead examine your lifestyle to see if all the proper conditions for health are present including a regular exercise program. A healthy individual possesses a purity of the bloodstream and circulatory system and abnormal conditions such as Raynaud's phenomenon do not occur.

Have researchers established a definite correlation between hypertension and high levels of salt use?

In countries such as Japan, where there is an extraordinarily high level of salt in the common diet, there is also a significantly high rate of hypertension. Salt stresses the mechanism that controls the fluid and blood levels, and high blood pressure comes about as a response to the additional salt load

Dr. Lewis K. Dahl of the Brookhave National Laboratories conducted research on salt and hypertension. Dr. Dahl wishing to explore why hypertension is so rare among primitive peoples with low-sodium diets, investigated the correlation between salt consumption and hypertension. Dr. Dahl conducted a pilot study at Brookhave where 1,346 adults were

classified according to their intake of salt. There were three categories: low intake (never adds salt to food); average intake (adds salt after tasting if insufficiently salty); and high intake (customarily adds salt before tasting)

Of the adults in the study, 105 were found to be hypertensive. Of all the subjects who had a low intake of salt, one was hypertensive. The high-intake group had 61 cases of hypertension.

Article #1: Coronary Thrombosis by Dr. Robert R. Gross, D.C., Ph.D.

The leading fatal affliction killing people in the prime of life is coronary thrombosis. This is a blood clot occurring in the arteries of the heart and occluding it (coronary occlusion). The area supplied with blood by blocked arteries loses its source of nutrition and oxygen and degenerates. This area weakens and nonfunctioning scar tissue forms. A "myocardial infarction" with consequent heart disturbance and degeneration has occurred. If the block is severe, death comes very quickly. If it is a milder condition, the patient may recover in a few weeks through complete bed rest.

A blood clot in a blood vessel is a "thrombus." When it becomes detached from vessel walls and floats in the blood it is called an "embolus." The resultant condition is known as "thrombosis." Thrombi may lodge in a heart artery (coronary artery), plug it, and block blood supply to a wedge-shaped heart muscle section. Floating clots may reach the brain, obstruct blood to important motor areas and result in partial or complete paralysis: "a stroke." Clots may travel to the lungs and occlude an artery causing "pulmonary embolism."

Blood Coagulation

Circulating blood in the cardiovascular (heart and blood vessel) system does not normally clot. When it is shed and exposed to air, it coagulates to form clots. The clotting mechanism consists of: *thromboplastin*, released from injured blood vessel walls, white blood corpuscles and blood platelets in the blood; *prothrombin*, a protein manufactured in the liver and converted into thrombin by thromboplastin; *thrombin*; *fibrinogen*, a protein manufactured in the liver and converted into fibrin by thrombin; fibrin, which forms lace networks, entrapping platelets (thrombocytes). A clot is produced.

Clotting is activated by the presence in the blood of calcium and substances known as "serum accelerators." Prevention of clots in normal blood is due to the presence of such substances as anti-thrombin, fibrinolysin, and heparin. Shed blood clots because these substances are oxidized and inactivated. Clots normally plug wounds in vessels, preventing hemorrhage. Calcium is the key factor in normal clotting; if inactivated or removed, blood will not, clot.

Coronary thrombosis occurs, usually, without warning. Many victims "had never been sick a day in their lives" or "just had a heart check-up and it was fine." Truthfully, the subject had been eating and living incorrectly most of his life. He or she was certainly sick with toxemia (general poisoning). Resultant chemical changes in the blood causes disequilibrium in the clotting mechanism. Clots formed adhering to the blood vessel's internal walls. Heavy work, eating an unusually large meal, excessive sex indulgence, over-exercise and emotional and temperamental outbursts cause dislodgement of clots leading to thrombosis.

The patient is prostrated and falls to the ground with ashen-faced pallor; pain in the heart region is severe, constricting and lancinating; pulse is thready—rapid, irregular and feeble; breathing becomes shallow and rapid; he has clammy, cold perspiration.

Tendency toward intravascular (within blood vessels) clotting is a serious hazard to life. Clots of coronary (heart) and cerebral (brain) arteries and the lungs often prove fatal. If such an episode occurs once, likely, others will form for causation still remains. The leg veins and heart are usual sites of clotting. Clots won't produce dangerous consequences unless they break off and float in the circulation to obstruct arteries, depriving a vital tissue of blood supply. Clots can consist of coagulated blood or fat droplets, air pockets, clumps of bacteria, tumor tissue, or inflamed heart vascular tissue.

Causes of Intravascular Clotting

Intravascular clotting is often a complication following surgery. Coagulation of shed blood inside (internal bleeding) the body plays a role in postoperative adhesions. Clotting occurs when the blood slows up (stasis) as in varicose veins, some heart difficulties (auricular fibrillation) and in injuries to blood vessel walls from bruises, cuts, or hypodermic needle injections. Clotting results from inflammation of vessel walls in phlebitis (vein inflammation) and certain diseases of the heart valves.

The basic and fundamental blood clotting cause is change in chemical composition of blood due to incorrect feeding habits. Acid tendency of the blood results from eating devitalized, demineralized, and devitaminized foods as: white sugar, white bread, pasteurized milk, sweet rolls, crackers, cakes, cookies, biscuits, sweet desserts, ice cream, soft drinks, pie, potato chips, candies, jellies, jams, buns, syrups, thickened gravies, hot cakes, waffles, dry cereals, alcohol, meats, chicken, fish and spaghetti. Arteries degenerate or deteriorate. Walls of vessels thicken (atheroma) and retard blood; it sludges easily and clots, obstructing narrow diseased arteries. In obstructions affecting large sections of the heart, resulting myocardial infarcts can deteriorate so badly that insufficient power remains to effect adequate circulation. The heart wall becomes so weakened that it ruptures fatally.

The majority of "coronary" patients, however, have a good chance to live. Sufficient compensation and enlargement occur, permitting the heart to function effectively. Other blood vessels are formed by nature and assume the circulatory duties of the occluded one. This is called "collateral circulation."

Medical Treatment

Physicians use "anti-coagulants" to dissolve formed, clots and prevent further clot formation. They are rutin, hirudin, heparin and dicoumarol. Like other drugs they are devastating, give a false sense of security to the patient, and produce chronic disease. They weaken walls (intercellular substance) of blood vessels and fatal hemorrhages can occur, internally and externally. Causes of internal clotting persist and danger of recurrences remains. Furthermore, the vital energy of the body is depleted by all drugs and other serious derangements occur in addition to clotting.

Natural Hygienic Care

Annual physical fitness examinations which the President received from army physicians failed to protect him from, a coronary thrombosis. Increasing medical examinations failed to reduce incidence of deaths from this "heart disease." To overcome this abnormal tendency no medical examinations or drugs, shots or pills are required.

The real "treatment" is rest and quietude which permits the heart to function normally again. Time, perseverance and inactivity are required.

Complete fasting (drinking only distilled water) several days under competent supervision should be undertaken immediately. This physiological rest reconstitutes vitality of the body and accelerates internal purification processes. It enables the innate healing powers of the body to manifest themselves

unobstructedly and efficiently.

Hygienic feeding is essential. Raw fruits, nuts and vegetables, whole grain products and natural sweets like raisins, figs and dates should form the dietary. These vital foods keep the blood stream clean and help heal degenerated arteries by producing general improved health.

Habitual living in tension with its destructive emotions—anxiety, depression, worry, fear, apprehension—is one of the chief causes of coronary thrombosis. This mental tension, incorrectly "nervous tension," makes the individual sick and miserable and exerts destructive forces (through the nervous and hormonal systems).

It is a sheer impossibility for man to disregard the laws of nature and remain healthy. To the extent that he deviates, to that degree will he suffer. Disease is a warning by nature that our bodies are poisoned; if signs are unheeded, deterioration will follow. Each disease is a crisis in life. Crisis means decision. We must strive to recapture our health by adhering to Natural Hygienic principles. We must make leisure hours to meditate and reflect errors committed in living physically, emotionally, morally and spiritually. Recognition of these mistakes helps to discontinue them, preventing future disease.

Nature or God provided us at birth with sanctified temples occupied by our souls, minds and thoughts. We must not defile these temples. It is our inherent responsibility to provide the proper brick, mortar and wood (blood, bones, tissues) to maintain the integrity and indissolubility of the temple. To ignore and refute the laws of nature is to disregard God. Adhering to Natural Hygiene tenets will bring rewards of health in body, soul and mind.

Article #2: Heart Attack by Dr. Geo. E. Crandall

In the past year, hundreds of people in middle life, especially men, have been killed by a heart attack. At least this is the statement appearing in our daily press. It could not appear on the death certificate as the cause of death for the simple reason that there is no such thing as a heart attack. How they conjured up such a misnomer is beyond comprehension. It comes from the same imagination as the nonsensical terms: FIGHT CANCER; FIGHT SYPHILIS; FIGHT PNEUMONIA and FIGHT TUBERCULOSIS! These false slogans impress the uninformed and misinformed and they are scary enough to make Congress shell out the almighty lucre without a dissenting vote.

You can't FIGHT cancer for the simple reason that the cause is not known, yea, not even suspected. The same holds true for syphilis, pneumonia and tuberculosis, the victims of these afflictions can only wrestle or fight with themselves to gain self-mastery. The battle is inherent and, if won, intelligent self-control will eradicate every so-called disease! This battle doesn't cost a dime, so what becomes of all the enormous sums of money allotted by the federal, state and municipal governments for the "FIGHT" racket? If the truth were known you would be surprised.

The heart of a man receives great protection from attack by the encasement formed by the thoracic wall. Except for the very small intercostal spaces or interstices between the ribs, it is securely protected by an armour of bone. From external sources it is nearly immune from attack except from a bullet or stab wound. However, in the so-called heart attacks, these two remote possibilities are not the cause; the attack, if there is one, must come from within. Can the individual attack his own heart? The answer is YES. Not directly in what is commonly spoken of as an attack or assault, but indirectly by a thousand and one subtle forms of over-stimulation.

The toxic effect of indigestion from overeating is the first great case, and this is ably aided and abetted by tobacco and alcohol, this is a trinity, friends, that is a constant attack upon the heart. In time it will ruin any heart, no matter how strong. No heart can withstand its onslaught much beyond 63 years, and many are taken by the Lord much younger. Everyone could postpone his or her death 30 years by overcoming all bad habits through self-mastery.

A normal life is the only protection one has from these so-called heart attacks. An individual must ruin his heart by years of abuse from bad habits before the attack is turned on that ends the career.

Inasmuch as there is no satisfactory treatment for a heart attack known to medical science, and often not enough time to apply even an unsatisfactory effort, it behooves all of us to play the game of life safely by giving up our bad habits and getting in tune with natural law and the universe. You can't be a "natural outlaw" for many years until the heart gives out; and then comes the inevitable newspaper recital ... heart attack and the mortician!

About 50% of the people do not know how to reform and live normally, and the other 50% prefer to cling tenaciously to their so-called "pleasures of life."

A normal heart beats 103,680 times a day. Think of the enormous amount of vital energy needed to carry on this work alone. Why should anyone wish to squander this vital energy in foolish, nonsensical, over-stimulating habits? Why whip the heart that is willing and ready to beat 103,680 times daily, without rest, for 100 years? If you treat this magnificent organ decently, there will never be a so-called "attack." You are the only one to blame, and the attack, if there is one, is from within, never from without!

Should one drug this organ with digitalis, strychnine and other heart stimulants, or paralyze it with morphine or other narcotics? Should a physician jeopardize your life by suggesting or advising it? That heart of yours will pump 3,784,320,000 times without a miss if you will, by correct living, give it a chance.

The greatest enemy to a normal heart is perverted nutrition, or what is commonly referred to as indigestion. The cause of indigestion primarily is overeating of staple and chemically incompatible foods. This is further augmented by the use of tobacco, alcohol, tea and coffee. Correct the perverted nutrition by following the rules. Overcome all bad habits just mentioned and you have removed from your life the cause of a heart attack. If you don't have a good heart in this world, what chance do you have in the next? If you want to inherit the kingdom, play fair. It cannot by accomplished by fooling yourself with overstimulation ... the advice of the clergy to the contrary notwithstanding.

Of all animals, man is the only one endowed with intelligence. The others all have to depend on instinct. However, no other animal but man suffers from so-called heart attacks and dies in middle life.

Why should intelligence be inferior to instinct? To the question, there is but one answer, namely, that whoever is guiding us along the lines of health is giving us erroneous advice and false statements. Do doctors want us to have knowledge that will insure grand health, thereby making their ministrations unnecessary? Isn't it to their distinct advantage to give us wrong advice so we will need their services for ailments built from incorrect living?

You can overcome all your bad habits if they interfere with health, but from whom can you learn about the laws of nutrition? Man's physical salvation depends on demanding this knowledge and receiving it. Drugs, serums and surgery are now masquerading as a substitute, but they are a false prophet and fail to bring us rational health knowledge. To overcome disease and prevent sudden heart attacks, we must learn how to get back to the normal and live correctly. You should become a "natural Methodist" and live a century; three score and ten are not sufficient. They lived that long two thousand years ago when the mind of man was in incubation. Why haven't we made any improvement or progress since? Because man has believed in demonology—that disease is a dispensation of divine origin and "men of medicine" have fooled away 2000 years trying to outwit the deity with pills, potions and palaver instead of recognizing that disease, heart attacks, and premature senility, are merely states of perverted nutrition caused by an incorrect method of living. A thorough understanding of human nutrition and the laws that

govern it will allow man to live six more score years and carry out the promise of the scripture as found in Genesis 6:3.

Article #3: Exercise and the Heart

Every one of man's organs is supplied with a reserve of functional power and ability, in excess of the needs of ordinary life, to be used in meeting emergencies or unusual demands. A considerable portion of the liver may be removed without its possessor appreciably missing it; about two-fifths of it may be removed, but if three-fifths are removed, he begins to feel it. We have much more liver than we really need for the preservation of life. This same is true of all the other organs of man's body, the heart included.

The capacity of the heart muscle for work is thirteen times as great as the amount of work it is ordinarily called upon to do. This most wonderful organ is one of the strongest and most resistant in the body. It is capable of outlasting any other organ of the body except the brain. Instead of work or heavy exercise injuring the heart, the muscles of the body become too tired to go on before the normal heart feels any strain.

The heart is a muscular organ—it is almost all muscle—and like all other muscles of the body, is strengthened by use. A heart that is never called upon to do vigorous work does not grow vigorous and strong. If it always does light work, it tends to become soft and flabby. If needs periods of vigorous work to build up and maintain its maximum strength and ability.

Running is the best exercise known for the heart. Running is the one universal exercise among the higher animals. Whether running merely for play, as one may observe dogs, cats and horses doing, or running away from an enemy or after prey, as one often observes in the wilds, running is frequently indulged in by life all around us.

Children run in play as naturally as do young kittens and calves, puppies and cubs. Running is the most natural form of exercise and has long been known to be the finest "conditioner" that athletes can employ in their training. "Road work" (running) is employed by the boxer to build up that condition of the heart and lungs that spells staying power when he comes into the ring for the fight.

Stop being afraid of your heart. What does it matter that some nit-wit has advised you not to attempt to climb even three steps? They have been killing those who take this advice for a long time. The best way to weaken your heart—to let it grow flabby like the muscles of your arms—is to never give it any vigorous work to do.

Stair climbing, started moderately and increased prudently, will result in recovery in many cases of supposed bad heart weakness. The late President Harding restored his heart to soundness by stair climbing after years of petting and pampering under the directions of his favorite pill roller who failed to help.

Any form of exercise—running, dumb-bell exercise, Indian club swinging, swimming, etc.—started moderately and increased prudently, will produce heart and lung development and lead to the establishment of robust health. Of all forms of exercise, running, as pointed out above, is perhaps best for the heart.

Although "regular medicine" never tires of telling us how many heart defects and other defects are susceptible of prompt eradication by proper measures, they seem never to be able to find the proper

measures. Their program of inactivity and drugging certainly does not remedy heart defects *d* and every day we see heart cases grow from bad to worse under this program of care.

The most difficult task in heart cases is that of ridding the patient of fear implanted by physicians. Yet the elimination of fear is one of our most important tasks. Fear paralyzes action and prevents the patient from carrying out the necessary exercise program. Fear cripples the heart itself. It impairs digestion and checks elimination and tends to prevent recovery.

In 1911 Clarence DeMar entered his name for a 26-mile Boston Marathon. His heart was examined by a doctor who told him to drop out if he got tired and advised him to give up running thereafter. DeMar won the race in record time. Since then, DeMar's record in 66 marathons, including three at the Olympic Games in 1912, 1924, and 1928, is 20 first, 12 seconds, 9 thirds, and he is still a keen marathon runner. Had he allowed the advice of the physician to frighten him and had he ceased running as advised, the name of DeMar would not stand so high in the athletic world.

Fear is man's greatest enemy. Fear is the greatest nerve annihilator known. It not only paralyzes action, it deranges digestion, impairs glandular action and checks elimination. Enervation, perverted metabolism, and toxemia are the results. Cases have come under my observation in which fear of activity (both conscious and subconscious) was so great, that the victims of fear were weak and always tired. Slight exertion exhausted them and made them feel bad. Those patients had been frightened by doctors and parents about their hearts and thus their hearts being denied the one thing that could make and keep them vigorous, had grown weaker and weaker.

Only exercise can strengthen and rebuild such hearts and peoples' fear of exercise prevents them from employing it. Fear paralyzes effort and denies their hearts the one thing essential to its recovery of vigor.

There are times and conditions in which the heart needs rest and nothing else will take the place of rest; but perpetual rest becomes rust. After rest has done its work, exercise is needed and nothing will take the place of exercise. After a period of preliminary preparation, vigorous exercise should be indulged. There are still many physicians who warn us of the grave dangers to the heart and other parts of our body that exist in athletics. Nobody ever warns the dog running after the hare, or the wolf chasing a deer, that running is bad for the heart. Only man seems to be built so poorly that he cannot indulge in the strenuous activities of life.

Physicians like to tell their heart cases that their heart troubles have been brought on by strenuous play like tennis, football, handball, swimming, running, jumping, etc., because any trouble so caused is supposed to be hard to cure and physicians find that patients have more patience with them when they fail to cure in a reasonable time, if they believe their troubles were caused by athletics.

Actually, this is one of the chief reasons why these patients are never restored to health. So long as physicians are mistaken about cause, so long as they fail to find the real cause, they cannot care for the patient in a manner that will restore health. Wrong care must always flow from an erroneous cause.